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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/558,266 04/25/00 KAMBE

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EXAMINER

IM52/0718

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ART UNIT

PAPER NUMBER

1774

DATE MAILED:

07/18/01

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

**Office Action Summary**

Application No.

09/558,266

Applicant(s)

KAMBE ET AL.

Examiner

Lawrence Ferguson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 April 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 17-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other:

***DETAILED ACTION***

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-16, drawn to a material having a layer, classified in class 428, subclass 206.
  - II. Claims 30-40, drawn to an article comprising a plurality of integrated devices, classified in class 351, subclass 41<sup>+</sup>.
  - III. Claims 17-29, drawn to method of making, classified in class 156, subclass 237.
2. Inventions I and II are related as a material having a layer and an article having integrated devices. The inventions in this relationship are distinct if either or both of the following can be shown: (1) that the apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product or (2) that the product as claimed can be made by another and materially different apparatus (MPEP § 806.05(g)). In this case the material can be used without the article as a an article comprising one integrated device.
3. Inventions I and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process

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(MPEP § 806.05(f)). In the instant case, the method can also be used to make devices within a layer without specified boundaries.

4. Inventions II and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the method can also be used to make a device within a layer without specified boundaries.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

6. A telephone call was made to Peter Dardi on June 05, 2001, a provisional election was made with traverse to prosecute the invention of Group I, claims 1-16. Affirmation of this election must be made by applicant in replying to this Office action. Claims 17-40, withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently name inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections – 35 USC 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. In claim 5, “generally” is a relative term and therefore indefinite.

***Claim Rejections – 35 USC § 102(b)***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 9 and 11-12 are rejected under 35 U.S.C. 102(b) as being unpatentable over Clark et al. (U.S. 4,728,591).

12. Applicant claims a material including a layer with a plurality of self-assembled structures comprising compositions.

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13. Clark discloses a device comprising nanostructures with a thin layer consisting of a self-assembled ordered material array (abstract, lines 2-7). Clark discloses a self-assembled molecular array with an array of holes with functional material to be used in the nanostructure is deposited onto the substrate surface through the holes (column 2, lines 45-51). Clark discloses an array of islands composed of the material (column 2, lines 52-53). Clark discloses the self-assembled membrane arrays have a diameter between 0.1 and 1 micron (column 4, lines 41-44). Clark discloses a metal oxide layer (column 6, line 52) and a metal layer (column 10, line 8). Clark discloses fragments (analogous to particles) of varying size up to 0.5 micron diameter (column 7, line 40). Clark discloses a composition (column 9, line 10). Clark discloses an integrated circuit (column 10, line 23). Clark discloses that the composite material may fluoresce (column 14, line 4). Clark discloses a polymer will connect two (or more) islands (column 16, line 42).

***Claim Rejections – 35 USC § 103(a)***

14. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. (U.S. 4,728,591).

15. Applicant claims a material including a layer with a plurality of self-assembled structures comprising compositions.

16. Clark is relied upon for claims 1, 9 and 11-12. Clark discloses self-assembled nanostructures (column 2, lines 26-31). Clark discloses biomolecular structures consisting of biologically active molecules (column 3, lines 1-2). Clark discloses biological molecules

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(column 15, lines 31-32). Clark does not disclose the size of the biological molecules as being macromolecule(s). However, it would have been obvious to one of ordinary skill in the art to use a biological macromolecule since a change in size of a component is generally recognized as being within the level of ordinary skill in the art.

### ***Claim Rejections – 35 USC § 103(a)***

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

41-43, 45-51, 52-57?

18. Claims 1-8, 11-12 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Debe et al. (U.S. 5,879,827).

19. Applicant claims a material including a layer with a plurality of self-assembled structures comprising compositions.

20. Debe discloses nanoscopic particles with a surface layer and composition (abstract, lines 5-8). Debe discloses catalyst particles are about 8-9nm in diameter and a nanoscopic particle 9.3nm in diameter (column 4, lines 56-60). Debe discloses organic materials and inorganic materials including metals (column 6, lines 62-65) and elemental elements (column 7, lines 10-12). Debe discloses a composition of an organic-based microstructured layer (column 7, lines 45-46). Debe discloses metal oxides (column 10, lines 15-17). Debe discloses self-assembled layers

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(column 10, line 62) as well as discrete islands (column 12, lines 65-66). Debe discloses fluorescence exhibited by particles (column 22, lines 30-49). Debe does not disclose the various diameters applicant is claiming as per instant claims 3-7. It would have been obvious to one of ordinary skill in the art to incorporate the various diameters because discovering the optimum or workable ranges of diameter(s) involves only routine skill in the art. Debe does not disclose a high index of refraction. It would have been obvious to one of ordinary skill in the art to include the high index of refraction because Debe uses the same composition(s) as applicant. The composition of Debe would be expected to yield the same high index of refraction as applicant claims, absent any evidence to the contrary.

***Claim Rejections – 35 USC § 102(b)***

21. Claims 1, 3 and 8-12 are rejected under 35 U.S.C. 102(b) as being unpatentable over Alivisatos et al. (U.S. 5,751,018).

22. Applicant claims a material including a layer with a plurality of self-assembled structures comprising compositions.

23. Alivisatos discloses self-assembled bifunctional organic monolayers as bridge compounds exposed to solutions of nanocrystals that are organized into an assembly of clusters (abstract, lines 1-14). Alivisatos discloses inorganic surfaces such as metals and oxides (column 2, lines 37-39) and thin layers of metal or metal oxides (column 5, line 7). Alivisatos discloses inorganic surfaces (column 5 line 67 through column 6, line 1). Alivisatos discloses fluorescence



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(column 13, line 16). Alivisatos discloses bridging moieties having two functional groups

(column 13, lines 44-46). Alivisatos meets the claimed limitations under 102(b).

### ***Conclusion***

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Ferguson whose telephone number is (703) 305-9978. The examiner can normally be reached on Monday through Friday 8:30 AM – 4:30PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on (703) 308-0449. Please allow the examiner twenty-four hours to return your call.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-5408 for regular communications and (703) 305-3599 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2351.

*CDF*

Lawrence D. Ferguson  
Examiner  
July 11, 2001

**CYNTHIA H. KELLY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700**

*Cynthia H. Kelly*